Isotropic and anisotropic collision-induced Raman scattering by monoatomic gas mixtures: Ne-Ar

Titre	Isotropic and anisotropic collision-induced Raman scattering by monoatomic gas mixtures: Ne-Ar
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Auteur	Dixneuf, Sophie [1], Chrysos, Michel [2], Rachet, Florent [3]
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Résumé en anglais	We report the long-overdue collision-induced Raman scattering spectrum by a pair of unlike rare gas atoms. Absolute-unit scattering intensities, both isotropic and anisotropic, are given for Ne-Ar, along with the depolarization ratio for this system, recorded by a gaseous room-temperature mixture over a wide range of frequency shift. We make a critical comparison with spectra computed quantum-mechanically on the basis of modern pair-polarizability representations for Ne-Ar, of either ab initio or density functional theory methods. We report a value for the Kerr second virial coefficient, deduced from our measurements. Our data are especially intended to add to the vital yet hitherto incomplete knowledge of the role of collision-induced processes in atmospheric environments.
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